

GRIP Tropical Forecast Discussion for September 23, 2010

Created 1600 UTC September 23, 2010

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Summary: AL95 (PGI46) is getting close to being declared a tropical depression, and after this morning's Air Force flight, could be declared a tropical storm. While previous days found mostly horizontal shear vorticity, an organized vortex is becoming apparent in satellite imagery hour-by-hour today. This will be the target of interest for the Global Hawk mission today/tomorrow. Otherwise, Lisa has weakened to a tropical depression and will move northwestward towards the north Atlantic, while ex-Julia is making noise as it actually pushes southward; although re-genesis is being given a low probability by the NHC (10%).

Forecast for 1600 UTC 9/23/10:

Synoptic Overview:

The western and central Atlantic and northern Gulf of Mexico remain relatively quiet, while the subtropical ridge dominates the large-scale flow (1). As Igor made its way out of the western Atlantic, it had allowed the ridge to propagate westward and pushed much drier air into the area (2, 3). This is likely the cause for the weak ITCZ and lack of favorable convection for tropical cyclone development.

CIMSS upper-level wind analysis currently shows an anticyclone centrally located over Cuba, which is inhibiting AL95 from moving (4). However, the models suggest that the anticyclone will soon be making its way eastward which could allow the disturbance to move northward and lead to a much more interesting situation by the weekend. Tropical depression Lisa is showing an increase in convection with steering largely dominated by the placement of the subtropical high (2). The only area to make note of outside of TD Lisa and AL95 is a wide area of unorganized convection off the eastern coast of Mexico spanning from the northern edge of Veracruz through the Bay of Campeche. This convection is associated with a weak disturbance located to the northwest of the Yucatan Peninsula which has been keeping the moisture in place despite the threat of drier air creeping into the area (1, 3). This area of convection is not likely to develop, however if the moisture stays put it could lead to a promising situation for AL95.

PGI-46/AL95:

According to satellite imagery (**5, 6**), PGI46 seems to have organized overnight with clear rotation near 76W/14N. The National Hurricane Center is giving an 80% chance of tropical cyclone development in the next 48 hours. There is scattered convection on the west side, but on eastern quadrants the deep convection is more widespread, particularly on an east-west line at 14N to the northeast of the disturbance. The 850 hPa vorticity analysis (**7**) shows a more circular vorticity maximum at 74W/13N, in contrast to the east-west elongated vorticity maximum that we've seen over the past few days. Although the deep layer vertical wind shear (**8**) has not been the major inhibitor for this disturbance (the latitude and perhaps location near land could be culprits), the shear remains low and should remain favorable. While the dust has been impressive near PGI46 for the past few days, today the dust is not as prevalent and remains mostly north of the islands (20N) (**9**; and according to visible satellite imagery). An Air Force C-130 will be out for reconnaissance later this morning – perhaps finding the necessary observations to declare a tropical depression or storm.

The consensus track forecast for AL95 is in (**10**):

24/1200UTC: 80W/14.5N; 25/1200UTC: 85W/15.7N; 26/1200UTC: 88W/16.5N; 27/1200UTC:

well, it diverges a lot here; some take it north along the central America coast while others take it northwestward over land and go into either the Gulf or south to the Pacific.

The intensity forecast (**11**) indicates genesis in the next 36 hours to a tropical storm (possibly a minimal hurricane) before weakening due to potential land interactions/landfall.

Overall, the 0000UTC and 0600UTC initialized models are not as optimistic of development; however given its current state, genesis seems likely.

The consensus track for forecast for the pouch is as follows (**12**):

24/0200UTC: 77.2W/14.2N; 24/1400UTC: 80.5W/14.7N; 25/0200UTC: 83.1W/15.3N;

25/1400UTC: 85.7W/15.9N; 26/0200UTC: 87.5W/16.9N; 26/1400UTC: 88.8W/17.6N;

27/0200UTC: 89.5W/18.2N; 27/1400UTC: 89.7W/18.8N

(**13**) shows the ECMWF forecast for the pouch and its possible intensification.

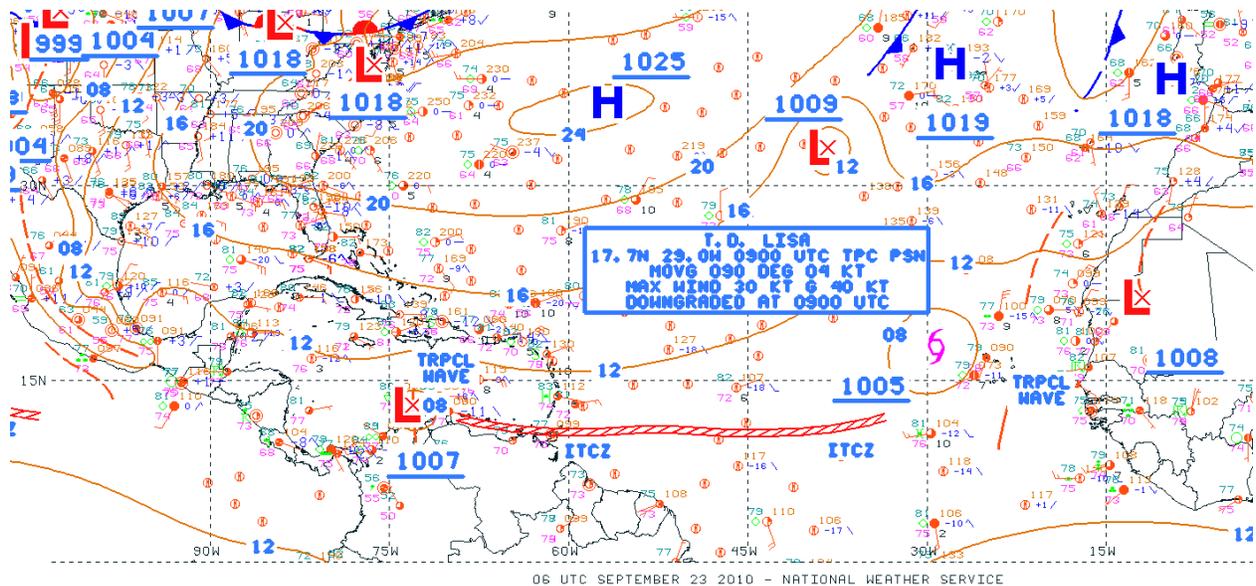
The dust will remain north of the disturbance on westward track towards Mexico, decreasing in quantity.

Tropical Depression Lisa:

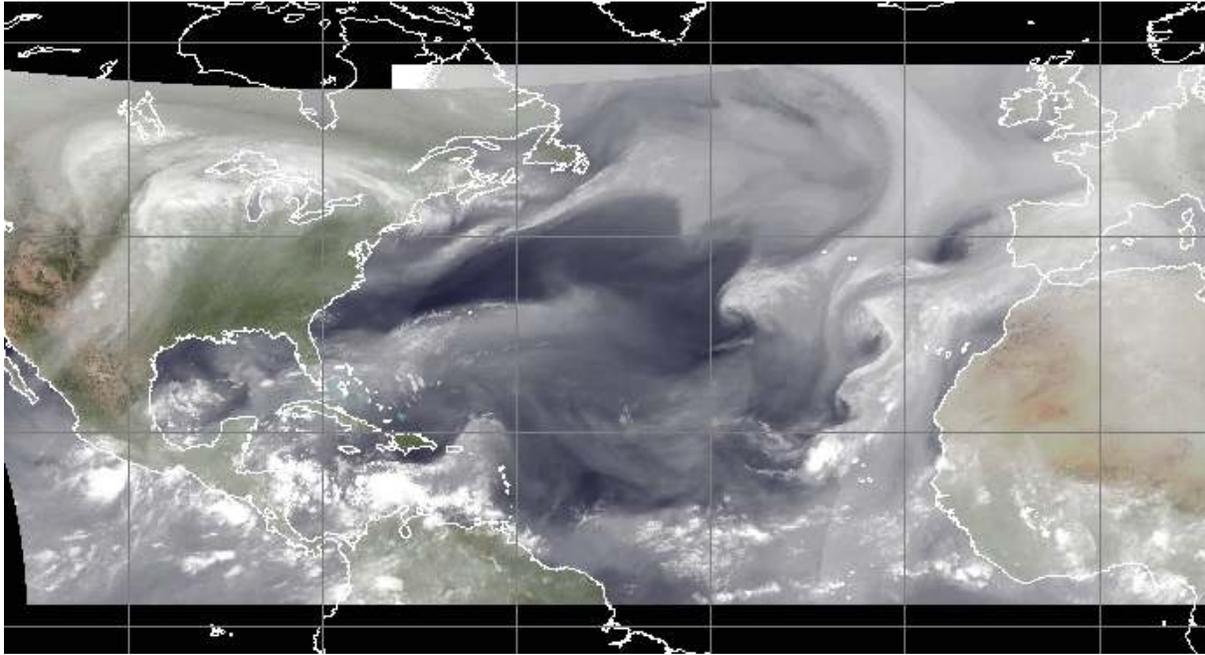
The estimated minimum central pressure of Lisa has increased from 1002mb at 2100UTC yesterday to 1005mb at 0900UTC today. For a brief period overnight Lisa had an increase in maximum sustained winds from 30kts to 35kts with gusts up to 45kts at 0300 UTC, but dropped back to 30kts by 0900 UTC. Lisa has maintained an eastward track at a heading of 90 moving slowly at 4kts. Lisa is currently located near 17.7N/29.0W (**14**) with an area of 10kt shear to the West of the storm and an area of 20kt shear to the East of the storm in the track of Lisa's propagation (**15**).

Model consensus for Lisa's track are split between two possible courses with the majority of members favoring a slow NW track, while a few members have Lisa tracking northward and then curving to the east by 36 or 72 hrs (16). Intensity forecasts imply Lisa will most likely remain a tropical depression with a few forecasts allowing the system to regain tropical storm status for some time after the next 24 hrs (16). The GFS shows Lisa remaining almost stationary for the next 48 hrs, with the vorticity maximum moving northward after 48 hrs and becoming less intense by 96 hrs. ECMWF has the disturbance moving NW with 850mb vorticity remaining centralized, but not deepening for the duration of the model run.

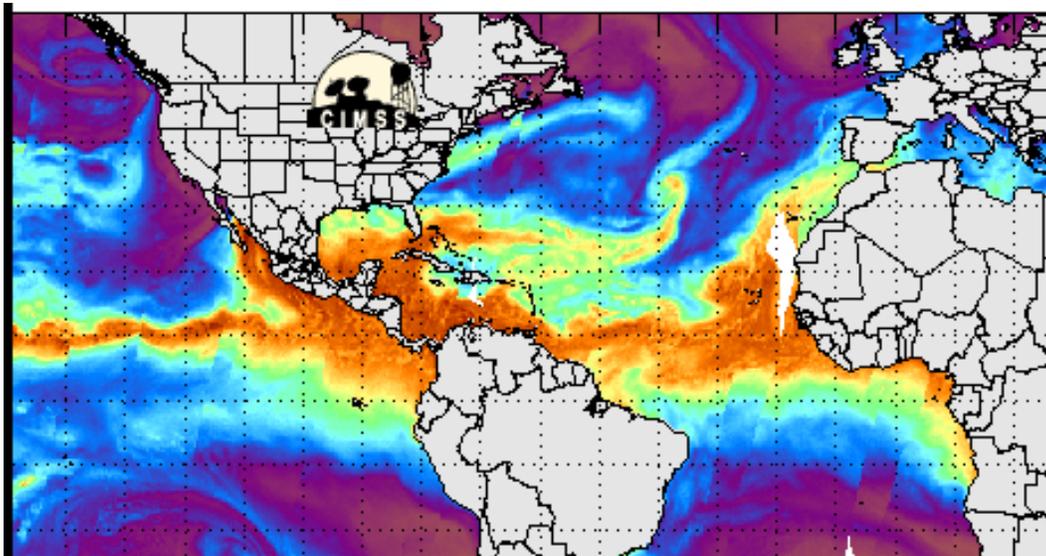
(1) 0600UTC 23 September 2010 unified surface analysis



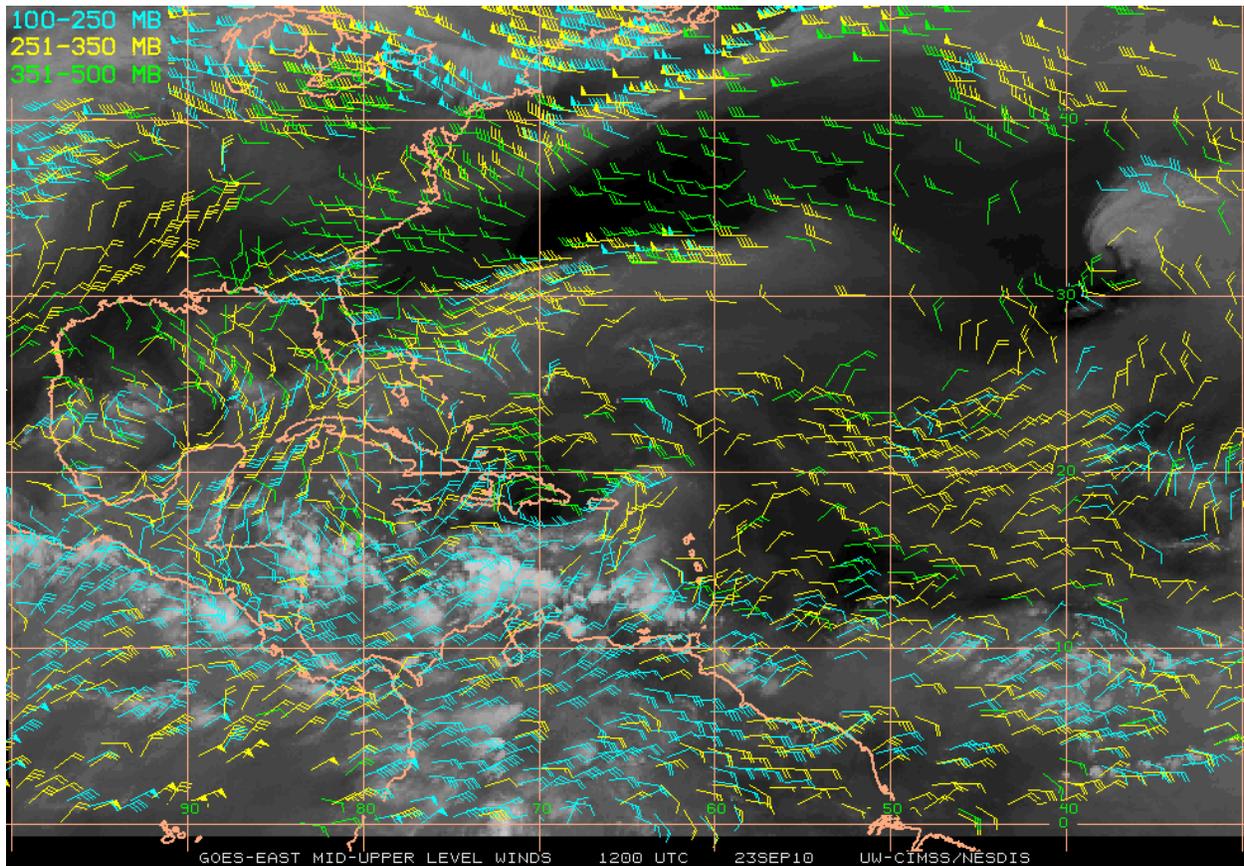
(2) Water vapor imagery 23 September 2010



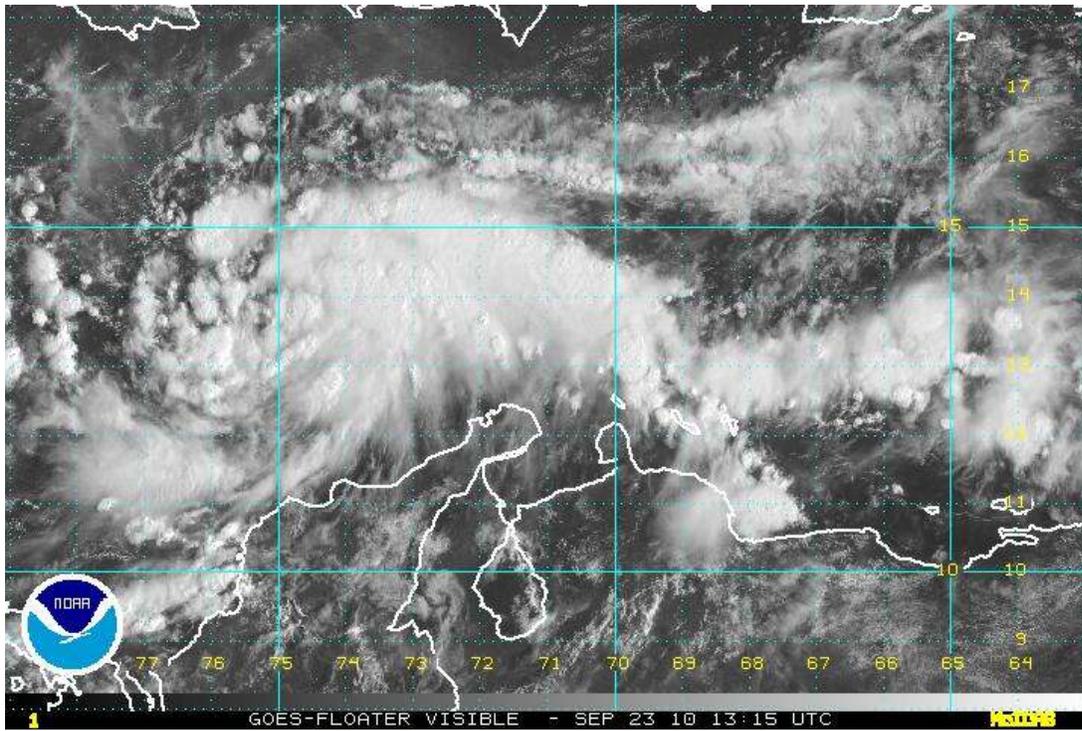
(3) Sea surface temperatures, 23 September 2010



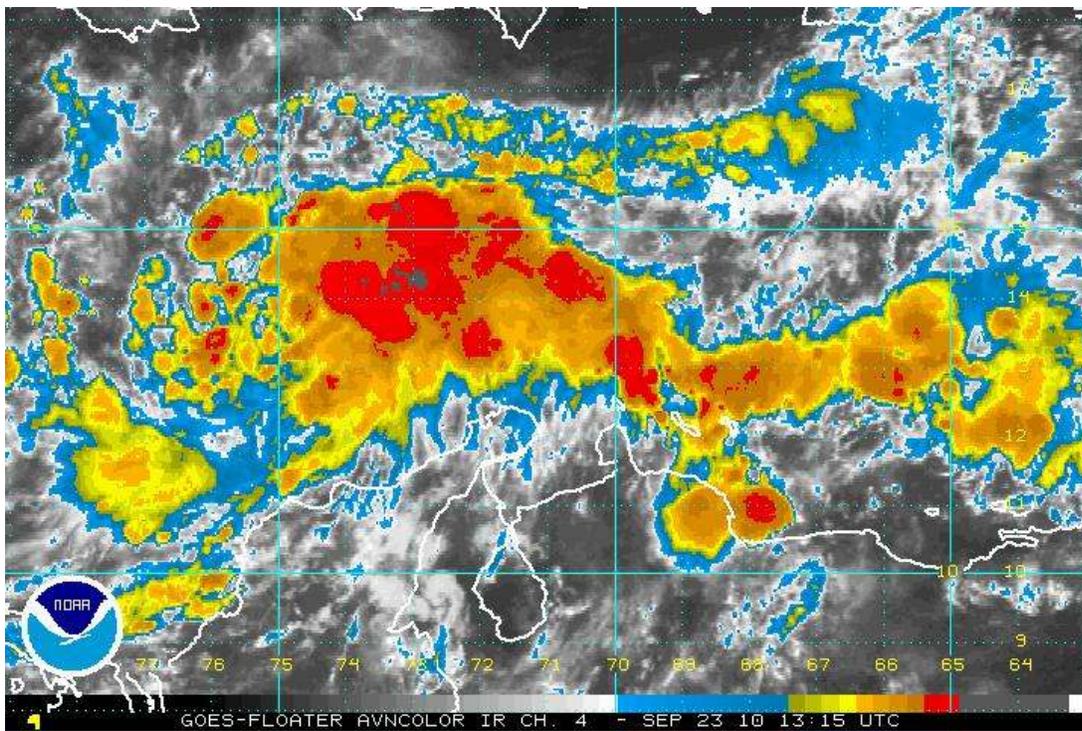
(4) CIMSS upper-level winds at 1200UTC on 23 September



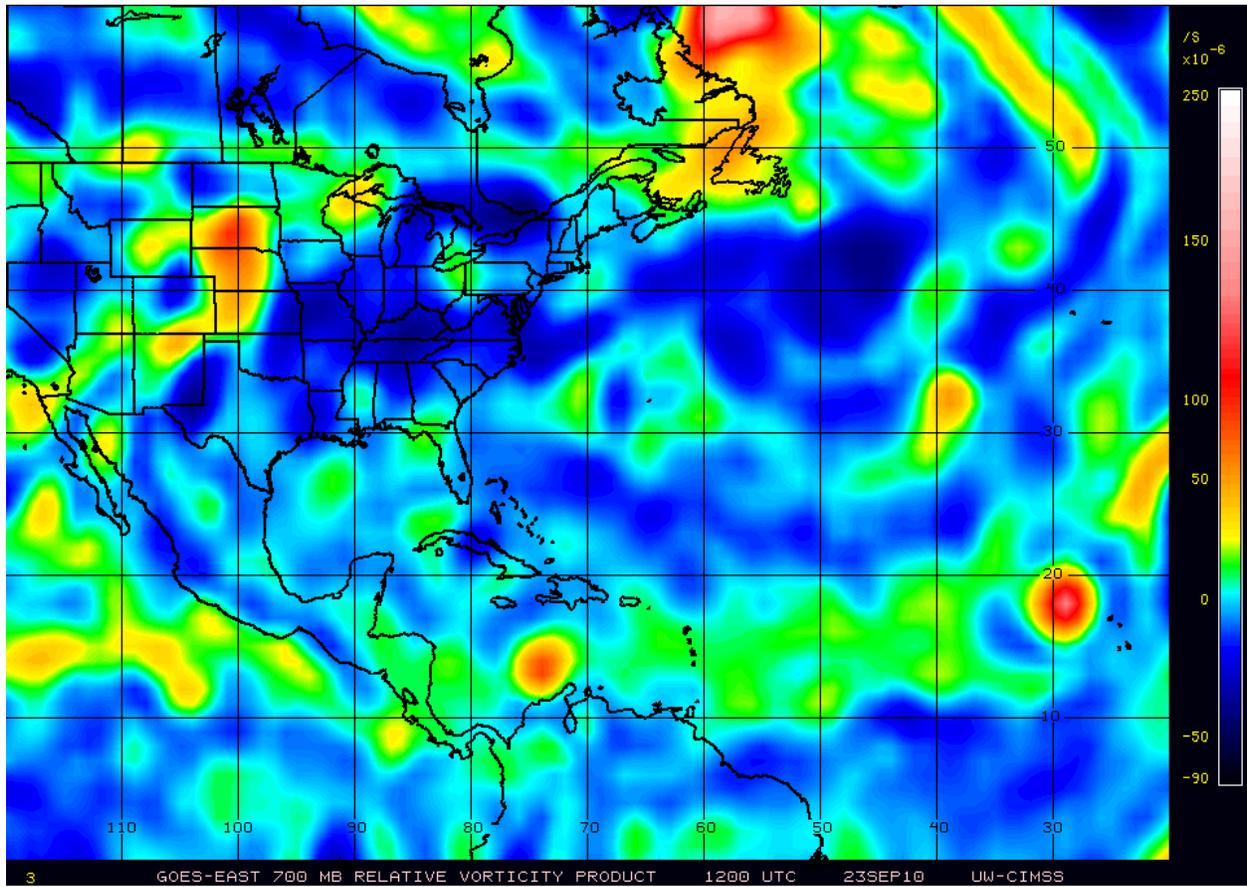
(5) Visible satellite imagery of PGI46 at 1315UTC 23 September 2010



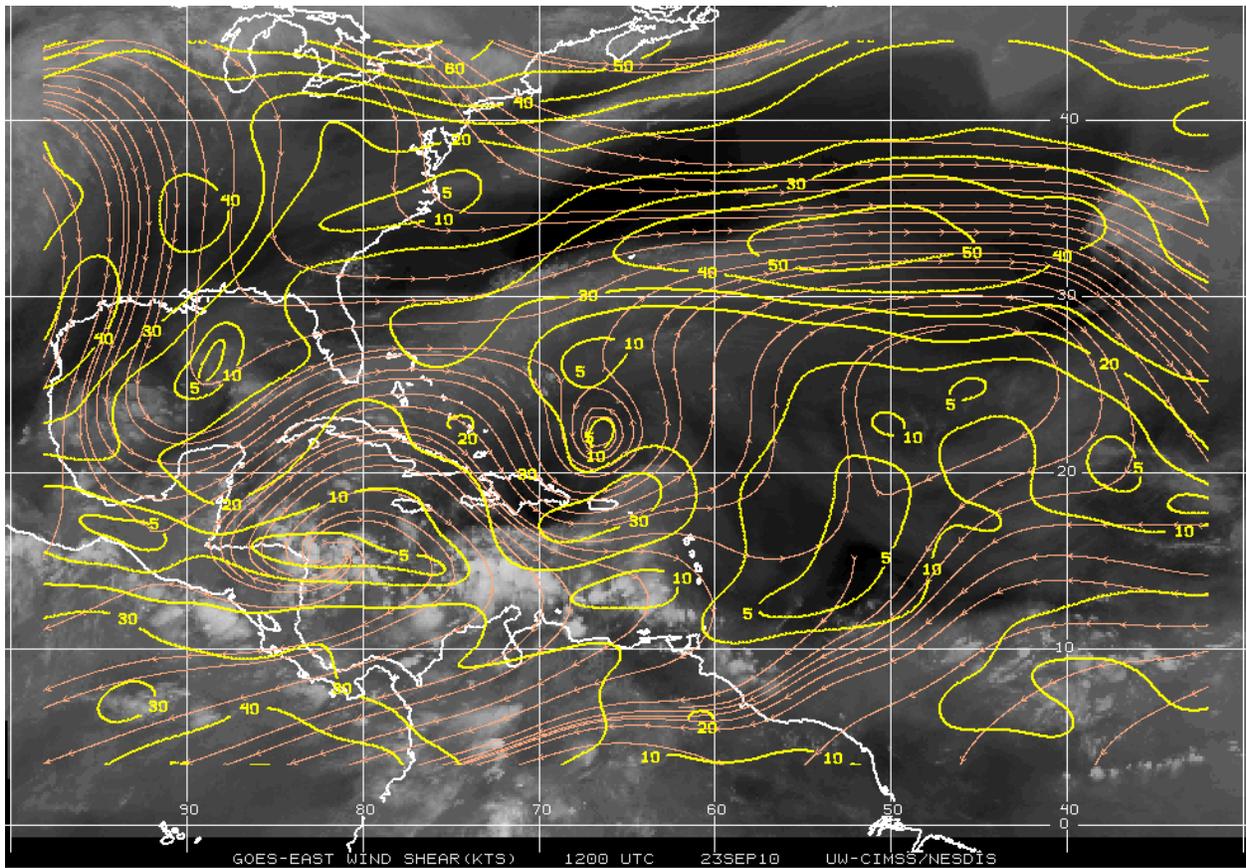
(6) IR imagery of PGI46 at 1315UTC on 23 September 2010



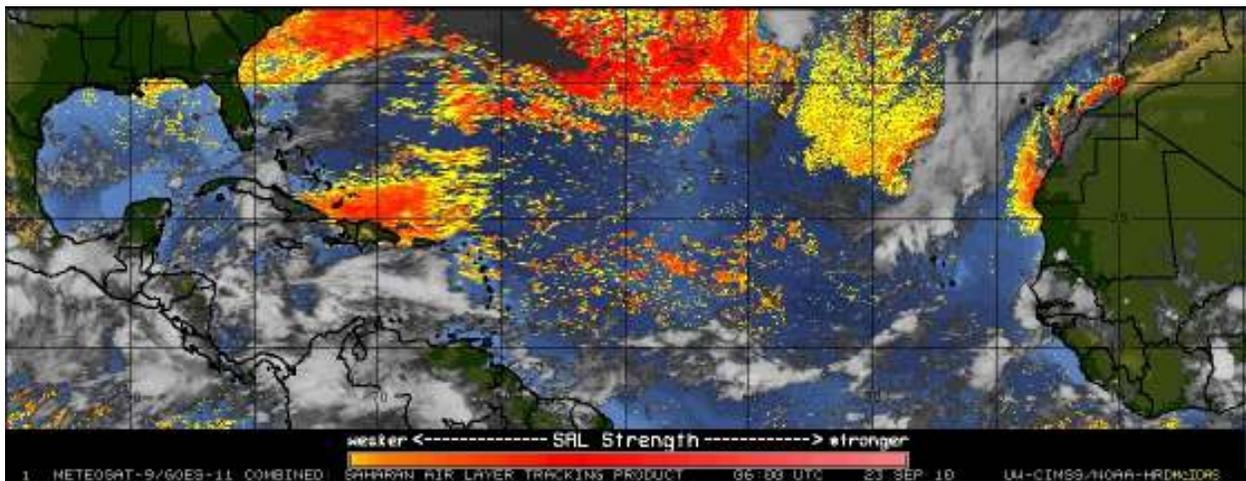
(7) CIMSS 850 hPa relative vorticity at 1200UTC on 23 September 2010



(8) CIMSS deep layer shear at 1200UTC on 23 September 2010

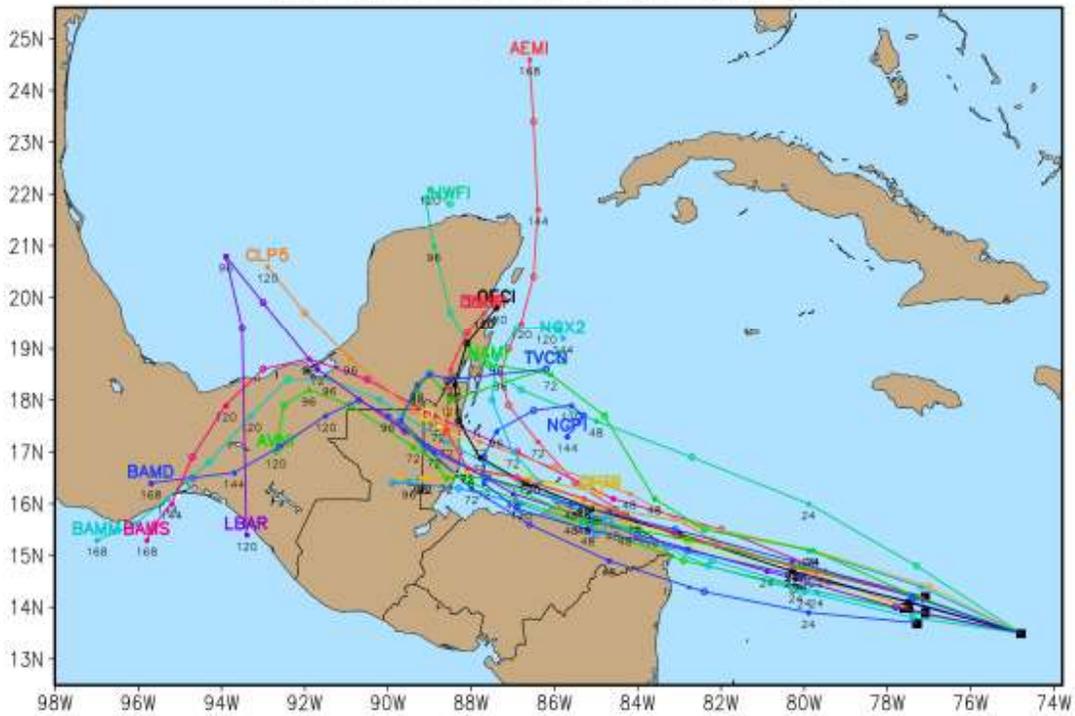


(9) CIMSS SAL analysis 0600UTC on 23 September 2010



(10) 1200UTC 23 September 2010 model tracks for AL95

Atlantic INVEST 95 Model Tracks
Valid Time: 1200 UTC 23 September 2010



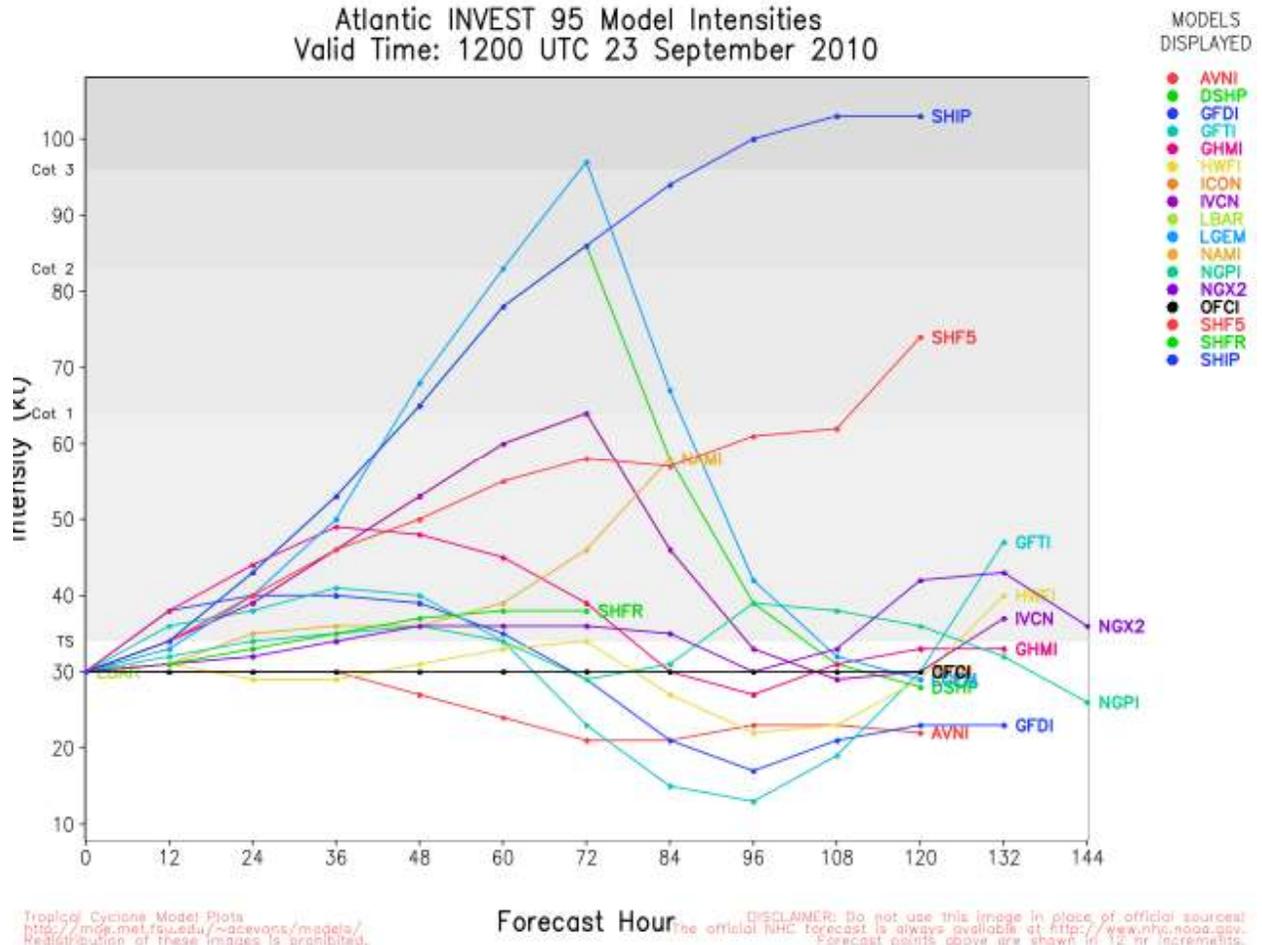
MODELS
DISPLAYED

- AEMI
- AVNI
- BAMD
- BAMB
- BAMS
- CLIP
- CLP5
- DSHP
- GFDL
- GFTI
- GHMI
- HWFI
- LBAR
- LGEM
- NAMI
- NGPI
- NGX2
- OFCI
- SHIP
- TVCC
- TVCN

Tropical Cyclone Model Plots
<http://mg.mel.fou.edu/~acewors/models/>
Redistribution of these images is prohibited.

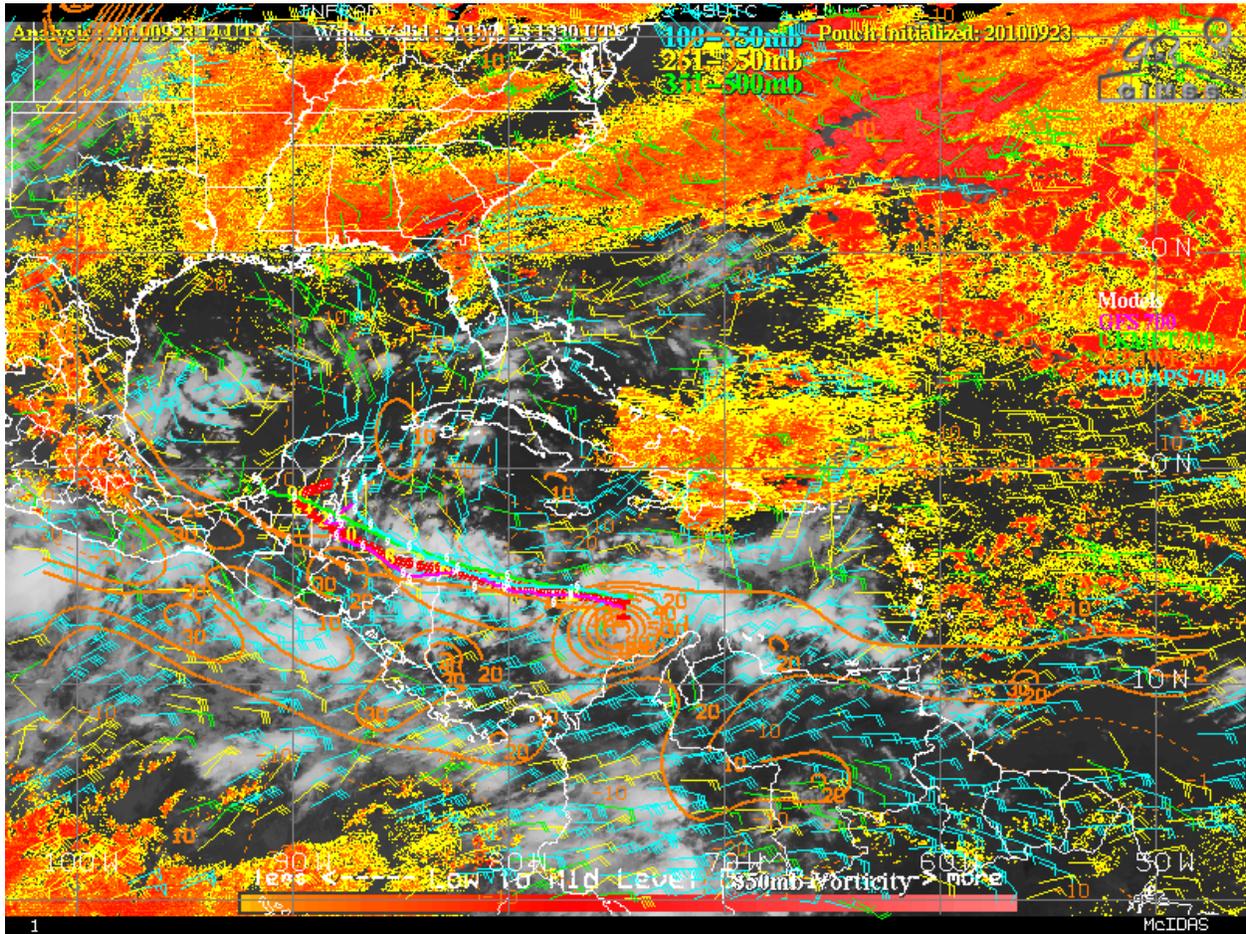
DISCLAIMER: Do not use this image in place of official sources.
The official NHC forecast is always available at <http://www.nhc.noaa.gov>.
Forecast points above are shown in 12-hr increments. Initial points denoted by black squares.

(11) 1200UTC 23 September 2010 model intensity forecasts for AL95



Tropical Cyclone Model Plots
<http://mg.mel.fou.edu/~acevora/models/>
 Redistribution of these images is prohibited.

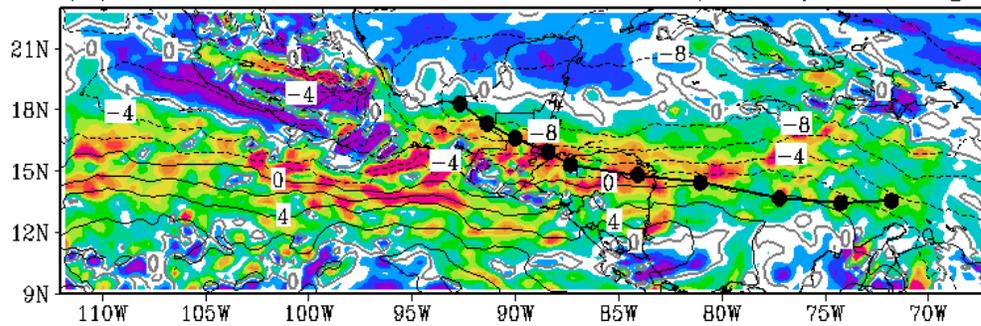
(12) CIMSS products for PGI46: IR satellite, SAL analysis, 850 hPa RVOR (orange contour), upper-level winds, and model tracks (consensus is red)



(13) 0000UTC 23 September initialization ECMWF pouch forecast

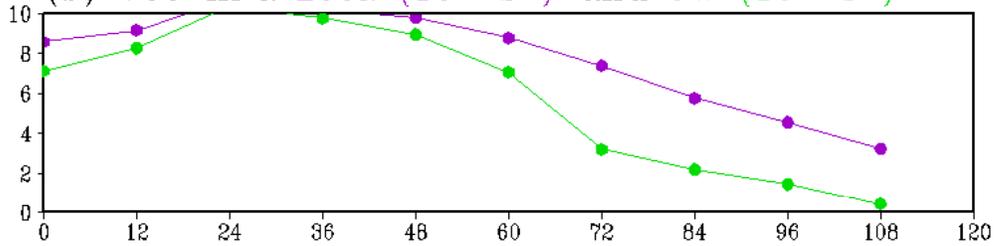
PGI46L: 5-Day Forecast Based on ECMWF
 Initialized at 2010092300

(a) Track, 700 hPa U and Zeta (5-day average)

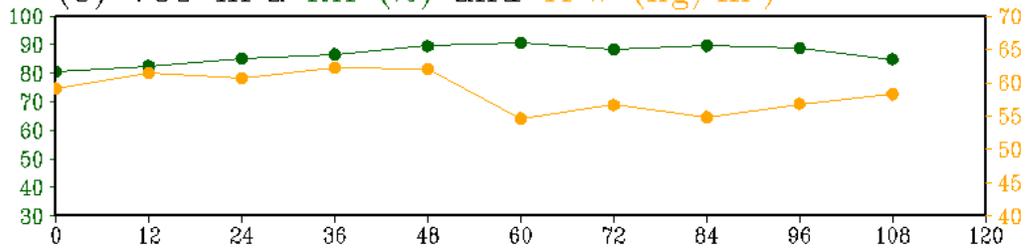


3x3 degree box averages following the pouch:

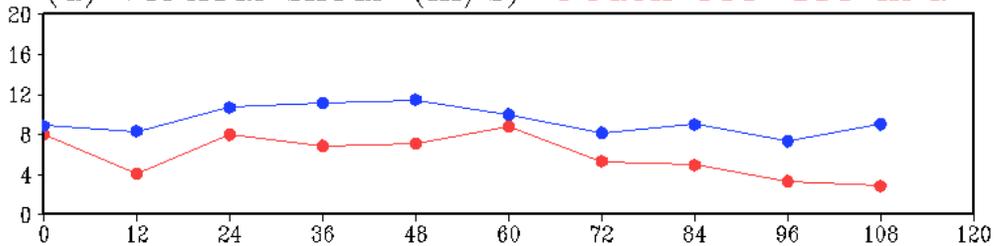
(b) 700 hPa Zeta (10^{-5} s^{-1}) and OW (10^{-9} s^{-2})



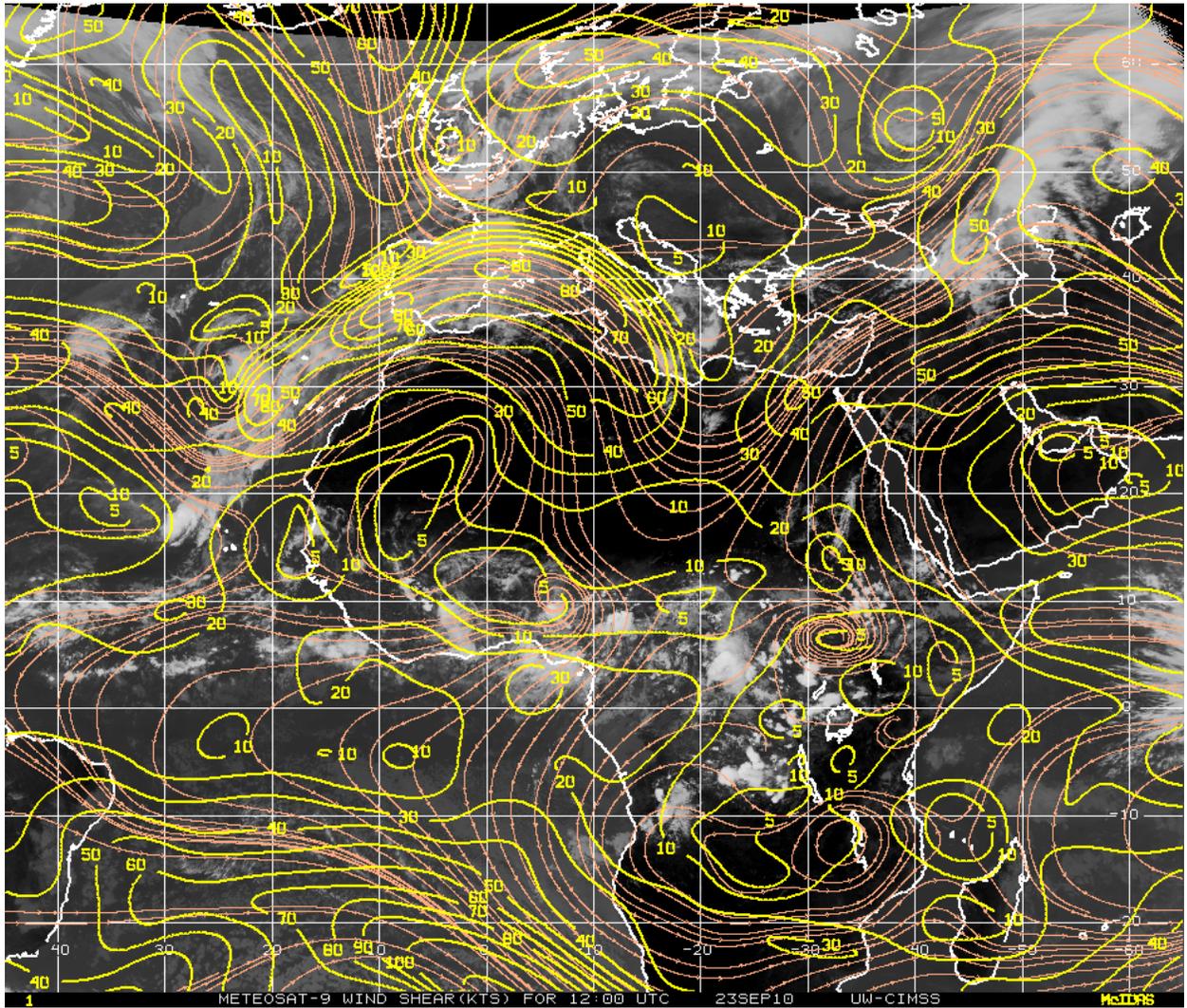
(c) 700 hPa RH (%) and TPW (kg/m^2)



(d) Vertical shear (m/s) Deep 200-850 hPa Pouch 500-850 hPa



(15) CIMSS vertical wind shear at 1200UTC, 23 September 2010

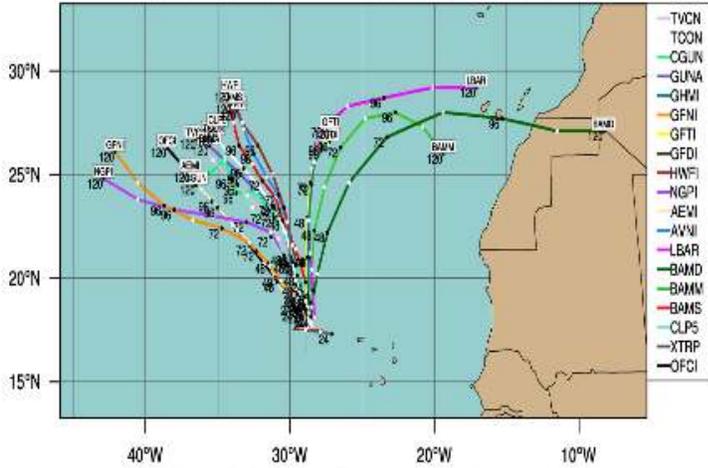


(16) Model guidance for Lisa for 1200UTC, 23 September 2010

TROPICAL DEPRESSION LISA (AL14)

Early-cycle track guidance valid 1200 UTC, 23 September 2010

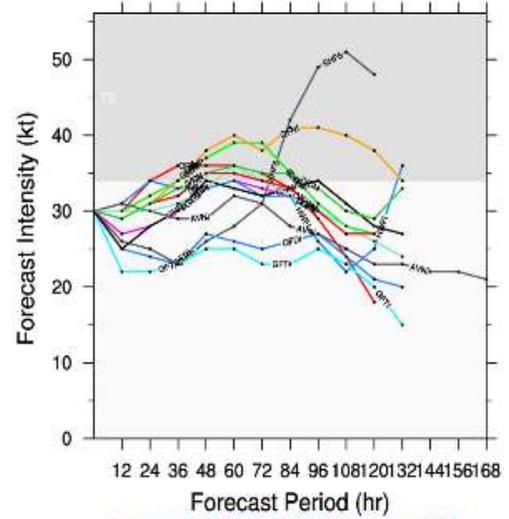
Current Intensity: 30 kt Current Basin: North Atlantic



This plot does not display official storm information. Use for information purposes only.
DO NOT USE FOR LIFE AND DEATH DECISIONS!

TROPICAL DEPRESSION LISA (AL14)

Early-cycle intensity guidance
valid 1200 UTC, 23 September 2010



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